

EXHIBIT 3

App Attribution in GAA

go/apps-in-gaa

PRD: 06/2020; author: chuyi

Background

App campaigns are a type of campaign, like Search or Video campaigns. These campaigns are typically run by app developers to drive conversions such as installs or in-app engagement. The ads these campaigns run can appear in search results, in Gmail, on the Play store, the GDA network, or YouTube, or even within other apps.

App attribution is a bit different from web attribution. In place of cookies or image pixel tags are SDK¹ identifiers, advertising IDs², referrers³, click data, and other information. Since users engage with apps over a period of time, there's also added emphasis on lifetime value when it comes to app attribution.

Our thinking on app attribution is still evolving. For the perspective of the App ads team, refer to [this PRD](#) or [this strategy deck](#). See [here](#) for detailed notes around bringing apps to Google Ads Attribution (GAA) and [here](#) for a design doc around app attribution in [REDACTED]

For an engineering view of the requirements, see [here](#).

Objective

Broadly, our goal is to offer consistent and compelling attribution features in Google Analytics and Google Ads to app-developer advertisers.

In the next year, we want to support multi-touch attribution (MTA) for app conversions in Google Analytics and Google Ads. Today, attribution in these two platforms is last-click based.

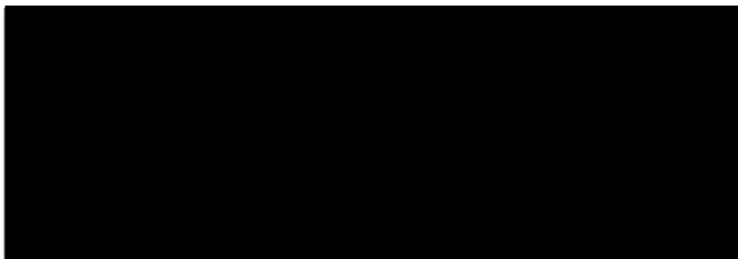
This means we'll need to expand Google Ads Attribution's support of conversion types beyond website conversions⁴ to cover app conversions. Though the majority of app conversions flow through third-parties (3Ps), our discussions here primarily focus on first-party (1P) data, meaning conversions tracked by our own Firebase SDK (also known as GA4F SDK) and imported from Google Analytics.

¹ SDK stands for Software Development Kit, an installable package that provides tools and libraries for developers to write code more easily.

² IDFA on iOS, ADID on Android. These are unique and device-specific, and can be reset.

³ Android only.

⁴ Today, GAA reads website conversions from Google Ads (AWCT) and Google Analytics.



[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

The user journey

1. An app developer has an app they want more people to install and engage with.
2. They buy and set up ad campaigns in Google Ads⁶ that promote installs of their app and in-app actions⁷. These campaigns can be app campaigns (covered here) or generic “Appify” campaigns (e.g., Search) that deep link into apps (see [here](#) for the journey in that case).
3. In order to know if their ads are working, the developer chooses a software-development kit (SDK) and writes some code using it to track when install or in-app conversions happen.
4. The developer sets up the SDK to ping a Google Ads API each time there’s a conversion. When Google Ads receives a ping, it responds with a postback containing information about the most recent Google ad interaction preceding the conversion. The SDK also does this with other platforms (e.g., Facebook) to learn about ad interactions that happen on non-Google properties.
5. The SDK, whether Firebase (Google Analytics) or another third-party App Attribution Platform (AAP), adjudicates between the ad interactions it learns about from different networks (e.g., Google Ads, Facebook, other ad networks), computes credits for each interaction, and logs these credits on its platform.
6. If the SDK determines that the last click belongs to Google Ads, it sends us a (conversion, ad interaction) tuple⁸ to indicate that we get credit for the conversion. If the SDK determines we were not the last click, it’ll send a ping confirming that Google Ads didn’t win the last click attribution (along with additional information like what other ad platform received credit or what

Commented [1]: @msiska [REDACTED] This user journey seems to be ACx specific. Do we want to update it to account for appify?
Assigned to Meng He

Commented [2]: Yeah, feel free to add some suggested edits!

Commented [3]: I have added a session with a link to the DDA for Appify (2-pager), where the details reside.

Commented [4]: Thanks! Using your suggested edits, I’ve updated bullet #2.

To clarify, what campaign types work with Appify? Search, YT, GDA, all?

Commented [5]: Hey @satvik [REDACTED], thanks for the suggestions. Based on your suggestions, I think the point I was trying to make was getting lost, so I rewrote this to be clearer. Does this look good to you now? Thanks!
Assigned to Satvik Chauhan

⁵ “Ads-preferred” refers to an attribution approach that distributes conversion credits only across Google properties.

⁶ Advertisers provide assets, a target, bid, and a budget, and specify geo and language targeting settings.

⁷ Examples: buy coins, redeem points, make reservation, obtain quote, schedule service, open account, et al.

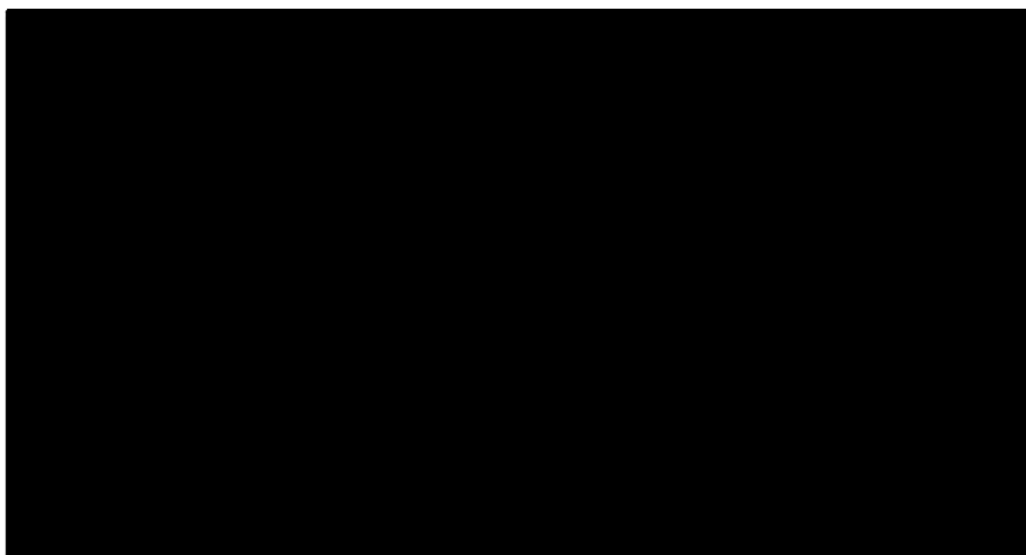
⁸

business logic the advertiser set on the AAP side that caused Google's ad event to be ineligible for credit).

7.

[REDACTED]

Here's a visual for the data flow:



Commented [6]: @satvik [REDACTED] I thought this may be AAP specific; is that correct?

Commented [7]: most AAPs do this. Correct the language a little bit.

Commented [8]: Thanks! Curious: what information is contained in the "why Google Ads wasn't the last click"?

Commented [9]: It mostly around 1. Other network won the attribution 2. Event wasn't eligible due to advertise settings on the AAP side like windows or some other business logic.

Commented [10]: Thanks! Updated the language in parentheses here.

Learn more about the fundamentals of app campaigns [here](#).

Attribution

App attribution is complicated in part because it's fragmented. Consistent Conversion Measurement (CCM) refers to our large effort to consolidate conversion tracking and processing.

There are a variety of SDKs advertisers can choose from to track conversions⁹. Today, 80% of app conversions are tracked using non-Google SDKs. We prefer advertisers use our IP Firebase SDK¹⁰, as this tends to give us better data for constructing multi-touch point conversion paths. Poor conversion coverage means there are fewer conversions to tie ad interactions to and spottier attribution.

⁹ AppsFlyer, Joust, Kochava, and Firebase are some of the bigger names.

¹⁰ The effort to drive Firebase adoption is called [REDACTED].

Developers tracking conversions using the Firebase SDK can see their app conversions in the core Google Analytics reports today (Analytics' Attribution reports are expected to start showing app conversions in Q1 2021). These developers can also link Google Analytics with Google Ads to see their conversions in Ads reporting.

However, advertisers will need to use the Firebase SDK if they want to employ automated bidding in Google Ads.

There are four types of automated bidding¹³ app developers can use to optimize for user actions:

tCPI, tCPA (the only bidding type for ACe campaigns), [REDACTED]. The ones with *s are in beta.

Side note: Analytics is a wrapper around the Firebase development platform. App conversions tracked by Firebase SDKs are sometimes referred to as Firebase conversions.

Since conversions are most frequently defined as an app install or some form of in-app engagement (e.g., a sign-up or purchase), app campaigns are categorized as App Campaigns for Installs (ACi) or App Campaigns for Engagement (ACe)¹⁴. These are known as sub-campaign types. ACi campaigns always lead to an app store, and ACe campaigns open the app (or fallback to the app store if the app is not installed¹⁵).

There are three types of conversions¹⁶.

¹¹ Google Analytics today and going forward will only support its own Firebase SDK. This is part of the [REDACTED] strategy.

¹² This is described in the user journey section above.

¹³ https://docs.google.com/presentation/d/1e34wkeWcB73B9u0gTvWk7nSwdZvrZLw0HCLMBB11Ugic/edit?hl=en#slide=id.g8c3be08af5_0_2567

¹⁴ There is also ACPre, a sub-campaign type intended to generate demand for an app before its release.

¹⁵ This is an edge case, since we try to avoid serving ACe campaigns to users who don't have the app installed.

¹⁶ Source [here](#).

Commented [11]: Currently, we agreed with @johnchen [REDACTED] that GAA won't cover 3P AAPs as App Ads strategy is to move them all to [REDACTED] SDK (Google 1P SDK) as per [REDACTED]. May be good to update this accordingly.

Commented [12]: I see. Does Google Ads support 3P AAPs today? It had sounded from [1] like Yes. So we would be removing support then for all SDKs except for Firebase SDK?

[1] https://docs.google.com/document/d/1JLZDbKYOLSizG_JEk3J7v3BZ-ZISpTBEvqdbZQX_Pl/edit?hl=en&disco=AAAAGISK9QI

Commented [13]: Yes for supporting 3p. No to removing support for 3p. We will require firebase SDK

Commented [14]: Cool, thanks, I've updated the [REDACTED]

Commented [15]: @guoling [REDACTED], FYI.

Commented [16]: This may be a bit misleading since [REDACTED]

Commented [17]: Agree, advertisers can (and usual [REDACTED]

Commented [18]: I see. Can all 3 sources be [REDACTED]

Commented [19]: That I dont know.

Commented [20]: Okay, could you clarify what you [REDACTED]

Commented [21]: Minor clarification. Anton is on App [REDACTED]

Commented [22]: Whoops, sorry about that!

Commented [23]: re:AAP- correct but on Google Ad [REDACTED]

Commented [24]: yes GA supports conversions only [REDACTED]

Commented [25]: >> yes GA supports conversions [REDACTED]

Commented [26]: What do we mean by 3p data? 3p [REDACTED]

Commented [27]: Ads will still use conversion pings [REDACTED]

Commented [28]: Right, for LC attribution app ads w [REDACTED]

Commented [29]: Makes sense

Commented [30]: +1 to the above.

Commented [31]: +balachandar [REDACTED] o [REDACTED]

Commented [32]: Currently we don't yet have 3p AA [REDACTED]

Commented [33]: Currently, we agreed with [REDACTED]

Commented [34]: I see. Does Google Ads support [REDACTED]

Commented [35]: Yes for supporting 3p. No to [REDACTED]

Commented [36]: Cool, thanks, I've updated the [REDACTED]

Commented [37]: @guoling [REDACTED] FYI.

Commented [38]: eCPC also accounts for conversio [REDACTED]

Commented [39]: Not sure I follow - mind clarifying [REDACTED]

**CLICK-THROUGH CONVERSIONS**

Based on a click, within a 30-day window on all AC ad formats

**VIDEO ENGAGEMENTS**

When a user watches a video ad for more than 10 seconds, and converts within a 2-day window (ACi) or 1-day window (ACe)

**VIEW-THROUGH CONVERSIONS**Based on a viewable impression, >50% on Screen >2 sec within a 24-hour window and on all ACi ad formats, excluding Search channel

There are dependencies between different types of app conversions (e.g., in-app conversions can only happen after install conversions). [REDACTED] sets out to bring more reflective credits for install-focused campaigns when users convert through in-app engagements after installation. This project has an expected impact of +\$XXM ARR. Data-driven attribution (DDA) will take a machine-learning approach to dealing with these dependencies instead of applying [REDACTED] duplication logic (e.g., pre-install checks). However, [REDACTED] is applied automatically to last click attribution.

Commented [40]: @chuy [REDACTED] I'm not sure I would characterize [REDACTED] in this way. [REDACTED] is really cross-campaign duplication of credit, not DDA. @becker [REDACTED]

Commented [41]: Agree. [REDACTED] is an intermediate step and would become one of the use cases of DDA in the future, but in itself it is in no way DDA.

Commented [42]: I had taken the word of the PRD review presentation linked here - sounds like I might have misinterpreted. Reworded based on your input. Thanks!

Commented [43]: We had some discussions on these topics before. The notes are here -- https://docs.google.com/document/d/101y8mnj7oWW4VKHRdKAigAJ6Z4xwo3tElvPQUKjF_Sc/edit#heading=h.bcy0moi8v00g.

Apologies that you were not in these discussions. I am happy to sync with you f2f if it helps.

For now we said that for DDA, we will not apply pre-install check or do duplication like [REDACTED] as DDA will address them directly. @johncher [REDACTED]

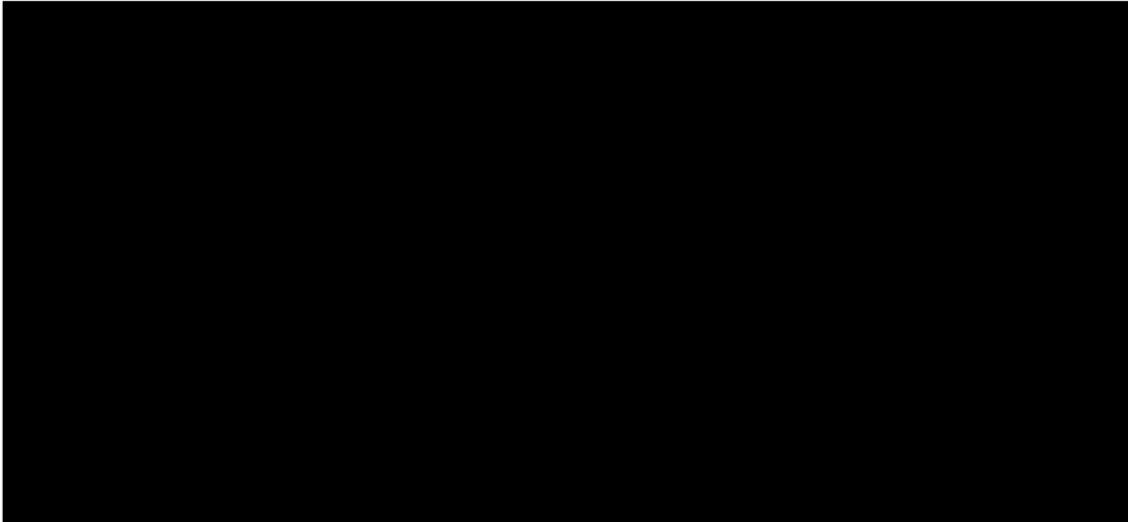
Commented [44]: Ah, no problem and good to know - added clarification here. Thanks for helping keep this accurate!

Appify also comes up frequently in this context. Appify is not a campaign type but rather a technology layer that allows Search, Shopping, and GDA campaigns to deep-link into apps using URLs. This is a strategically important way to drive app conversions and therefore part of the app attribution story. App conversion tracking is complex since conversions can occur either on an app's mobile website (no deep link) or in the app itself (Appify deep link).

Appify works when an advertiser sets up app links (Android, iOS). When app links are set up, mobile users who click on an ad with a URL landing page are not prompted to choose how to open the link but are instead taken directly to the advertiser's app. Mobile users who don't have the advertiser's app installed and users on Desktop are directed to the advertiser's website.

App ad interactions like clicks, engaged views¹⁷, and playable views¹⁸ are logged in [REDACTED]. These interactions can happen on a range of surfaces, since app ads can appear in many places.

Here's a system diagram showing how app data comes together for attribution:

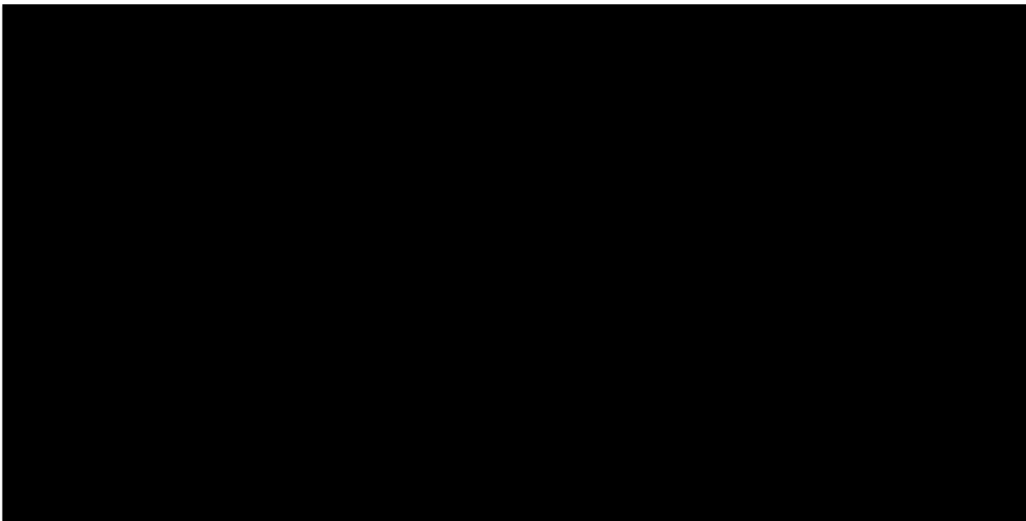


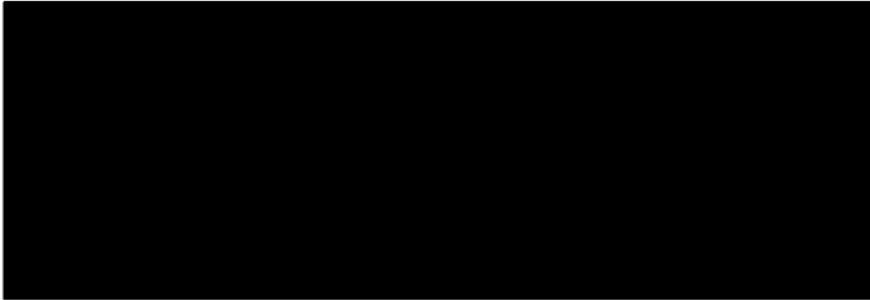
Key facts, considerations, and points of discussion

- As with any other form of attribution, coverage of both ad interactions and conversions is critical. We realize we may never have the complete picture here. Here's a diagram of the app conversion flow:

¹⁷ User watched the video for 10 seconds or until the end.

¹⁸ User watched the video for less than 10 seconds.

- 
- With the exception of app installs, “app conversions” refer to conversions that happen within an app on a mobile device.
 - Google Analytics in the future may only support Firebase SDK, per our [REDACTED] strategy. Today, we recommend advertisers “dual tag,” meaning that they use both our Firebase SDK and an AAP.

- 
- Google Analytics today only supports last click attribution and uses a fixed lookback window¹⁹ of 180 days. There’s an open question about what other lookback windows we should support for different interaction types. [REDACTED]

- [REDACTED]

¹⁹ More about lookback windows here:
https://docs.google.com/document/d/15hkRX6yxo5HfvXiFyorlaUmz7tDIXQfTek_S1elvz90/edit?hl=en#bookmark=id.2w45gl2tzs4j.

Commented [45]: On the Ads side, @beckerman [REDACTED] is leading a project to introduce configurable lookback windows for different interaction types.

Commented [46]: Kechy and I discussed Project Windows and its implications on [REDACTED] at length :)

Commented [47]: Heh, she alluded to those when I chatted with her, too. What would you say makes this problem most difficult? Is it that there are different opinions about what the right lookback windows are, or that some systems have deep-baked assumptions around lookback window lengths, or something else?

Commented [48]: I think just the fact that we have different window types and offered window ranges that affect our optimization and attribution both in Ads and in 3P AAPs. Changing windows, introducing new windows, etc. is very complicated.

- There are two specific questions:

1. What lookback window requirements does the [REDACTED] team have for Apps training data?
 - Decision: Use a [REDACTED] for training instead of [REDACTED] (the default in [REDACTED]) for now.
2. There are a few places lookback windows are relevant in Ads. GAA supports Default, [REDACTED] windows in its reports. In AWCT / core Ads reports, we honor the conversion windows set by the user. What work is needed to support these use cases?
 - This is still being investigated.
 - We will not train on or report app conversions whose last click falls outside the advertiser's configured conversion window (the logic is a bit custom, as described [here](#)). In other words, when advertisers select a preset lookback window of [REDACTED] in their reports, the conversions reported only include those with a last click within the advertiser's configured conversion window. This is aligned with how GAA handles web conversions today. (The reason behind it is that conversions without a last click within the conversion window are eligible for conversion modeling. We wouldn't want to include an observed conversion of this kind, only to have it modeled too.)

Commented [49]: @shuangsu [REDACTED] and @qinghua [REDACTED] to formalize as needed!

Commented [50]: I had some discussion with Qinghua, and so far, we agree on not reporting/training on a conversion if its last click is out of the user configured LBW, even if a click might be within the [REDACTED]

This is the current behavior for GAA web, and I prefer keeping the same behavior for App. The reason for not including such a conversion for reporting/training is that this conversion eligible to be used in conversion modeling in Ads. If this conversion ends up being modeled, then we might report it as two conversions in some LBWs, one is observed, the other is modeled.

Commented [51]: That makes a lot of sense - thanks for the explanation. Is there still a question that we should track here, then, or should we consider question #2 resolved?

Commented [52]: Question for Shuang: >> not reporting/training on a conversion if its last click is out of the user configured LBW. So if the last click is an EV, we use EV LBW and if it is a physical click, we use CTC, is that correct? what if the last click is an EV which is outside of EV LBW, but we still have a physical click within CTC LBW?

Commented [53]: This conversion is also filtered.

Commented [54]: Wenjie, was the thinking behind your question to see if the rule here [1] was applied?

Shuang, I tried to document this comment here ...

Commented [55]: >> was the thinking behind your question to see if the rule here [1] was applied? No, these conversions will not be seen by aggregation ...

Commented [56]: [2] LGTM.

Commented [57]: FYI, this is only for x-channel DDA exports. The Google Ads preferred DDA (currently done through GAA path for web but proposed to be ...

Commented [58]: Thanks for clarifying this, Bala. @hetal [REDACTED] how should I reconcile what Bala's flagging with what we talked about last week?

Commented [59]: I think what Bala is saying is inline with what we discussed last week. I think it might help to add a bullet point here saying that we will also ...

Commented [60]: FYI, this is only for x-channel DDA exports. The Google Ads preferred DDA (currently done through GAA path for web but proposed to be ...

Commented [61]: Thanks for clarifying this, Bala. @hetal [REDACTED] how should I reconcile what Bala's flagging with what we talked about last week?

Commented [62]: I think what Bala is saying is inline with what we discussed last week. I think it might help to add a bullet point here saying that we will also ...

- Google Analytics is working to support x-network data-driven attribution, which would attribute credits to non-Google sources. These credits will be stored in the JACCC logs and used exclusively by Google Analytics (not by Google Ads).

- When Google Analytics exports conversion credits to Google Ads, it's always on a last click basis. For website conversions today, Google Analytics exports x-network last click credits to

Google Ads. These can be thought of as (conversion, ad interaction) tuples, and conversions without a corresponding click are not sent.

- For website conversions, Google Ads performs conversion modeling (██████████) on this data to infer ad interactions we may have missed. This modeling sometimes infers an ad interaction that should receive last click credit for a (currently unattributed) conversion. This ad interaction is then joined to other, earlier ad interactions to form a path. (On Search and GDA, modeled data makes up a small fraction of total conversions. On YouTube, modeled data can make up a decent fraction though is still the minority.)
- For app conversions, we'll follow a similar pattern: Google Analytics will emit (conversion, ad interaction) pairs to Ads (██████████) based on last click attribution. Ads will model on top of this to generate modeled conversions (██████████). GAA will then consume Google Analytics collection logs, (██████████) and (██████████) to build multi-touch paths and send these paths to (██████████). (██████████) on (██████████) will then generate attribution credits (for all 6 models) used for GAA and AWCT reporting and bidding. The official system of record for the design is [here](#). The following is just a sketch of the process.
 - Both Google Analytics and AAPs already export app conversions on a last click basis — that is, (conversion, ad interaction) tuples. This is the key input to Google Ads and will not change.
 - We'll need to expand the limited app conversion modeling we do today. (██████████)
 - In 2021, in addition to (██████████) (██████████) (██████████) (██████████) (██████████)
 - As of August 2020, it was decided that the data processing for Ads-preferred DDA credits will happen on Google Analytics infrastructure (██████████) on (██████████) but will only be surfaced in Google Ads Attribution reporting.
 - UI, aggregation, and serving will be done on the Google Ads side.
 - Beyond 2021, Google Analytics may surface these credits in Analytics reports as well.
- In the case where one (██████████) property is linked to two Ads accounts that track conversions separately, we can think of the behavior as follows:

Commented [63]: @deng [REDACTED], do you know if Google Ads uses Google Analytics' credits or still computes its own and uses that for reporting and bidding?

Assigned to Chris Teng

Commented [64]: Google Ads also uses its own when it comes to Google Analytics as a conversion source.

Commented [65]: Heh, so interesting. Thanks!

Commented [66]: For google analytics, app conversions, we ping over the unattributed conversions to BOW and let EventFe do the ads preferred LC attribution. This flow is different to export of web conversions from [REDACTED] where we export only conversions attributed to Google Ads via LC X-channel model

Commented [67]: Ah, sounds like Attribution modeling is baked into the credits received by Google Ads isn't correct, then. Rather, the conversions "sent to Google Ads" is conversion-model agnostic?

Commented [68]: @deng [REDACTED], do you know if Google Ads uses Google Analytics' credits or still computes its own and uses that for reporting and

Commented [69]: Google Ads also uses its own whe

Commented [70]: Heh, so interesting. Thanks!

Commented [71]: For google analytics, app

Commented [72]: Ah, sounds like Attribution

Commented [73]: C credits are stored in JAC logs

Commented [74]: @clend [REDACTED] do you kno

Commented [75]: Google Ads also uses its own wh

Commented [76]: Heh, so interesting. Thanks!

Commented [77]: For google analytics app

Commented [78]: Ah, sounds like Attribution

Commented [79]: @clend [REDACTED] do you kno

Commented [80]: Google Ads also uses its own whe

Commented [81]: Heh, so interesting. Thanks!

Commented [82]: For google analytics, app

Commented [831]: Ah, sounds like Attribution

Commented [84]: @senseday [redacted] this

Commented [85]: It is a shared [REDACTED]

Commented [186]: Hey all, as a follow up to this

Commented [87]: @kellynolson [REDACTED] and

Commented [98]: I am, the summary looks accurate.

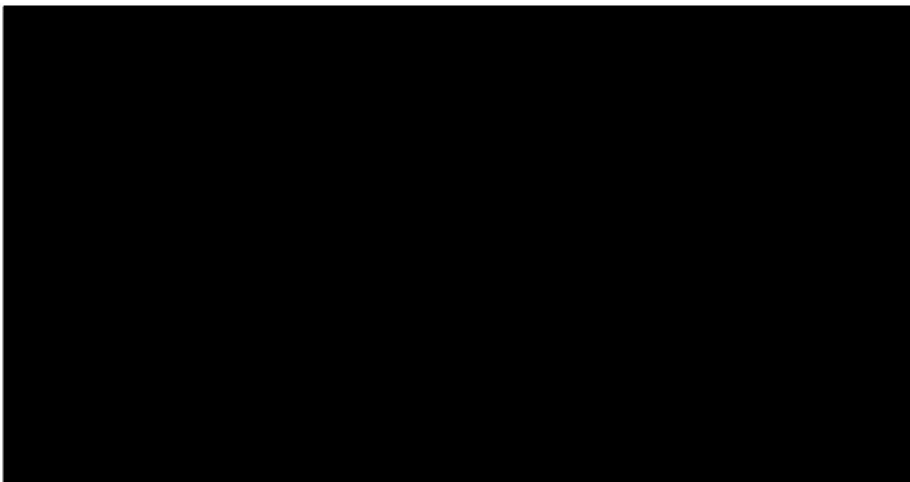
Commented [199]: LGTM

Commented [90]: latm, thanks for writing this!

Downloaded from <http://ajph.org/> on November 10, 2014

[REDACTED]

- [REDACTED] and GAA share the same processing pipeline, whereas GAA web uses a separate pipeline.
- Here's a diagram showing the expected difference in attribution modeling when comparing Ads-preferred data-driven attribution (new) with Ads-preferred last click attribution (current):



- There are and will likely continue to be nuanced differences between how Google Ads and Google Analytics does attribution, from the ID space used to the modeling itself. See [here](#) for more details.
- Google Ads will continue allowing developers to send 3P SDK data. Android developers can also use Android Codeless Install Tracking to send app downloads from Google Play directly to Google Ads²⁰. This data just won't be usable for bidding.
- On the Incrementality front, conversion lift has been commercialized [REDACTED]. This data has yet to be employed by [REDACTED].
 - We have data around the uplift of ads in GDA, YouTube, Google Play, and AdMob.
 - We do not have conversion lift data for apps in Search.

²⁰ Learn more [here](#).

Commented [91]: If an app conversion is split into two different Ads accounts and therefore two different Path reports, is there any way to at least flag when a path step is fractional?

Commented [92]: There are ways we could show this for sure (we do in Google Analytics, [REDACTED], but it'd require some careful design and probably medium amounts of implementation work, so I'd probably lean toward going this route only if needed. Do you think messaging via the UI, Ads HC, etc. could be a solution?

Commented [93]: It could be for sure - I guess it depends on how common this issue will be. [REDACTED]

Commented [94]: [REDACTED]
@kechyeke [REDACTED] is that right?

Commented [95]: [REDACTED]

Commented [96]: I think it is feasible to use a flag to indicate that the path is a part of a longer paths. In backend, we can have a dimension to indicate that this path is split from another path. However, it will be difficult to provide more detailed stats, e.g. the length of the original path.

Commented [97]: Thanks, Kechy and Wenjie. Given the complexity here even if we wanted to show fractional paths (i.e., the fraction we'd show would be a function of the attribution model), I'm still leaning toward handling this via messaging.

Commented [98]: Are there more information about the lift study? How is the TEDDA team consuming the lift data to develop their model?

Commented [99]: @cteng [REDACTED] would you know or be able to direct? Thanks!

Commented [100]: Lawrence would know, but I think it's all conjectural for now, we aren't actually doing anything with [REDACTED] for the lift data.

Right now all of the lift results live with the CL team's tables

Commented [101]: Ah, okay.

@lawrencechang [REDACTED] @jiwang [REDACTED] are there plans to use this data that I can document here?

- There have also been live holdback background studies performed on advertiser campaigns.
- App conversions should be attributable to both "Appify campaigns" (meaning: regular campaigns whose landing pages are to apps with app links set up) and AC* campaigns.
- "Appify campaigns" can lead to / should be eligible to receive credit for website conversions.
- Since AC* campaigns have selective optimization and lead to an app or app store, Attribution should not attribute credit for website conversions to AC* campaigns.

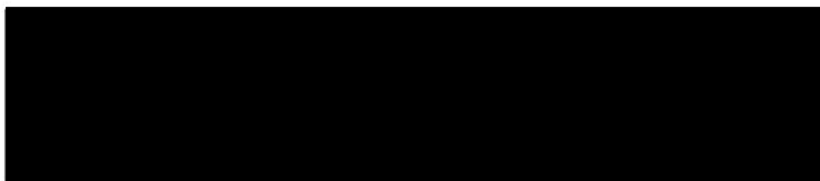
Commented [102]: Can we rephrase this to "regular campaign clicks which are eligible for app conversion attribution". The definition of app conversion attribution.

Commented [103]: Basically - once

Commented [104]: Thanks for flagging and makes sense to update this. Only question is whether we can find a less self-referential way of defining this. The point of this bullet is to clarify which campaigns are eligible for credit, so it seems strange to define this as clicks eligible for credit, heh. :-)

- The data sources for app data in [REDACTED] and GAA are:

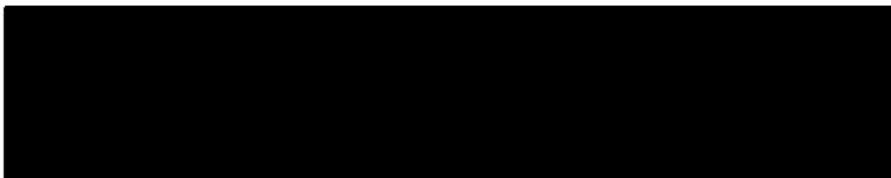
²⁴ Context 



- For last click attribution, GAA will use AWCT last click. This is different from the behavior for Web, where GAA and AWCT use different logic to determine last click (GAA performs the computation server-side by looking at timestamps, whereas AWCT relies on custom waterfall logic).

Data-driven attribution (DDA)

- Data-driven attribution is an attribution modeling approach that will have an implementation in Google Analytics and another in Google Ads. In Google Analytics, DDA will attribute credits to multiple networks and platforms. In Google Ads, DDA will allocate credit only among Google properties.
- Google Analytics is currently working on supporting data-driven attribution as one of the forms of multi-touch attribution for both cross-channel and ads-only paths.
- DDA for website conversions already exists in Google Analytics Classic. It is a paid feature of Multi-Channel Funnels (or MCF, available with the Google Analytics Classic UI) and is available for free in Google Analytics' Attribution reports [REDACTED]. Note: Google Analytics Classic is a web only product.
- With the migration from Classic to [REDACTED], we are working on bringing DDA into [REDACTED] as well. This feature is an adoption blocker for the migration.
- [REDACTED] is cross-platform so to ensure a consistent experience for users across app and web, we plan to support DDA for apps as well. In addition to offering a consistent experience, DDA will also help advertisers analyze the path to conversion for apps more holistically (similar to web) and will address the use cases that [REDACTED] is solving for.
- DDA for Apps started earlier this year and we have plans to launch together with DDA for website conversions next year (~Q2 2021).
- Challenges include:



Commented [105]: Hey @kechyeke [REDACTED] would you add a few bullets here that give an overview of the key points around bringing DDA to Google Analytics?

Maybe things like:

- When the effort began?
 - How far along is it / what milestones we've already hit?
 - What are the key challenges?
 - etc.
- Assigned to Kechy Eke_

Commented [106]: Charles, I think this PRD is about GAA, not GA?

Probably also add a few bullets for conversion modeling for [REDACTED] and how those interacts with DDA, similar to the GAA YT part, modeled conversions are not used for training, but for attribution. whether it's worth evaluate DDA on modeled conversions etc.

Commented [107]: Added some high level bullet point, PTAL.

@lanhuang [REDACTED] maybe it's better to link to a design doc on those details?

Commented [108]: @kechyeke [REDACTED] do you mean the YT design documents or app? We haven't started the design for app attribution.

Commented [109]: Thanks, Kechy!

>> Charles, I think this PRD is about GAA, not GA?

For sure, yeah. That said, I figured that what GA was up to may play a significant role in decisions on the GAA side.

>> Probably also add a few bullets for conversion modeling for x-device, multi etc, and how those interacts with DDA

Lan, what would be the key points you think we should highlight here for Apps?

Commented [110]: [REDACTED]

Commented [111]: I see. For now, I've tried to capture this in the Key questions section (https://docs.google.com/document/d/1JLZDbKYOLSLzG_JEk3J7v3BZ-ZISpTIBEvqdbZQX_P/edit?ts=5f10db2d#bookmark=id.1z403uum730g).

As far as actually making this decision, seems like we

- Initial results (from 12/2020) are [here](#).
- It was decided in Q4 2020 that we would [first launch DDA on Appify](#) (with AC* on last click), likely in Q3 2021, then subsequently expand DDA coverage to AC* campaigns. See [here](#) for examples of how Attribution credits will be distributed in various cases.

Bidding in Google Ads TBD.

Reporting in Google Ads

- Google Analytics has app reporting in its core reports but not yet in its Attribution reports. App reporting in core reports is unified with web reporting in [REDACTED]. (Adding a filter allows users to segment their app conversions from web conversions.) An example can be seen in the [conversions detail report](#), though this data can be seen throughout other core [REDACTED] reports too.
- Path reports and modeling credits for apps is expected to land in [REDACTED]'s Attribution reports in Q1 2021.
- Google Ads reporting encompasses both core Ads ("AWCT") reporting and reporting in Google Ads Attribution.
- Since the Google Ads Attribution backend will export app credits to AWCT, core Ads reports will be able to show the conversion stats that we compute. [REDACTED]
- In the Google Ads Attribution UI, incorporating apps reporting amounts to a few changes, some required and others optional.
 - [P0] Specifically for the ad group dimension, we should report on the reporting ad group and not the serving ad group.
 - [P0] We'll increase the scope of conversions to include app conversions, which users can adjust for their reporting using [this dropdown](#).
 - In addition to the two groups we have today (*all actions* and *all biddable actions*), we should add the following four groupings to the dropdown ([example](#)):
 - *All website conversions*
 - *All biddable website conversions*
 - *All app conversions*
 - *All biddable app conversions*
 - This gives us a total of 6 "predefined" options in the dropdown.
 - We will also update the conversion dropdown so that users can select arbitrary combinations of conversions for reporting (moving from single- to multi-select).

Commented [112]: Hey @beckerman [REDACTED], is there anything special about how bidding works in Google Ads for apps that might be worth noting here? Assigned to Anton Beckerman.

Commented [113]: Adding @qinghua [REDACTED] and @shuangsu@google.com, too, in case there are any key points we should log here.

Commented [114]: @kechyeke [REDACTED], could you share a screenshot of some of these reports? Slides or other material welcome too! Assigned to Kechy Eke.

Commented [115]: Added a screenshot. Let me know if you need more.

Commented [116]: Thanks! Could you also share a screenshot of apps data in [REDACTED]?

(BTW, when I try to navigate to that page, I see <https://screenshot.googleplex.com/aWOjptBZ4M>. Is there permissions to Google Analytics I need to get to see the account?)

Commented [117]: [REDACTED] doesn't support apps since GA Classic didn't support apps. This is the value prop of [REDACTED], measurement across app and web.

Commented [118]: >> [REDACTED] doesn't support apps since GA Classic didn't support apps. This is the value

Commented [119]: Right. We don't have Attribution/DDA in [REDACTED] yet so Advertisers see their

Commented [120]: Got it, thanks!

Commented [121]: Hey @msisk [REDACTED], @kechyeke [REDACTED] @beckerman [REDACTED]

Commented [122]: @cteng [REDACTED]

Commented [123]: do you have a list of metrics you plan to support in GAA reporting? LTV is a metric that

Commented [124]: The proposal here implies we keep the metrics we have today. So we have path reports

Commented [125]: I agree with LTV is important, and the fundamental question is what is the best tool to

Commented [126]: Good question on computation. Diff products compute differently but in Gold it's base

Commented [127]: Sounds intriguing - LTV does seem like a new sort of insight worth exploring / that

Commented [128]: @chuy [REDACTED] in the world of web, is this only limited to biddable conversions of

Commented [129]: In GAA we support reporting that's limited to biddable conversions and reporting across

Commented [130]: limiting to biddable conversions makes sense.

Commented [131]: To clarify, for web we have _all web conversions_ and _all biddable web

c. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] See more details [here](#).

d. [REDACTED]
[REDACTED]
[REDACTED]

e. [REDACTED]
[REDACTED]

f. [P0] We should update the *Overview page* to include app data.

g. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- [REDACTED]
[REDACTED]
[REDACTED]
- [REDACTED]

h. [P2] We may choose to build additional cards on the *Overview page* to reflect app-specific insights.

- See deep dive [here](#).

Google Ads Attribution milestones

- 1) Multi-touch attribution (including DDA) for Apps for reporting and bidding.
 - a) Paths where the last click is Appify²⁵ (Android only, non-OPC conversions, modeled conversions + spam + retraction not supported) or from an AC* campaign
 - b) The following networks will be supported at launch: Search, Gmail, Display, Shopping, Youtube
 - c) The conversions in scope are goals explicitly "marked as a conversion" on the Analytics side, imported into Ads, and enabled(?)
- 2) Mature app conversion modeling ([REDACTED], LAT, XD)
- 3) Incrementality calibration for Apps DDA

25 [REDACTED]

Commented [132]: @chuy [REDACTED] ...
 Commented [133]: Conversion type. In fact, as I ...
 Commented [134]: btw, how does this work with EV ...
 Commented [135]: In GAA reporting, we use the ter ...
 Commented [136]: Current CDA path report only ...
 Commented [137]: We allow configurable windows f ...
 Commented [138]: @pensadov [REDACTED] ...
 Commented [139]: What would it involve to add ...
 Commented [140]: I checked with Guoling about EV ...
 Commented [141]: >> Currently for web, we do not ...
 Commented [142]: Just to clarify, the PMT design d ...
 Commented [143]: >> Adding a 3-day fixed window ...
 Commented [144]: Aggregation table contains the ...
 Commented [145]: Would you mind updating / loopi ...
 Commented [146]: I think default makes more sense ...
 Commented [147]: Thanks for confirming, and make ...
 Commented [148]: We might need a meeting to ...
 Commented [149]: Hmm, we won't run DDA on AC* ...
 Commented [150]: FYI, @rayluong [REDACTED] ...
 Commented [151]: @shuangsl [REDACTED] ...
 Commented [152]: Network type (channel) include ...
 Commented [153]: By the way, by the time we're ...
 Commented [154]: Charles, in GAA we don't have th ...
 Commented [155]: It doesn't look like Apps is one of ...
 Commented [156]: It looks like the app vs. web does ...
 Commented [157]: For #1, simply extending the ...
 Commented [158]: For #1, if we only list conversion ...
 Commented [159]: Gotcha, yes, I've added this to th ...
 Commented [160]: I believe that campaign types are ...
 Commented [161]: The campaign_type column in th ...
 Commented [162]: For #2. Device and stream shou ...
 Commented [163]: Update here: campaign_type ...
 Commented [164]: @chuy [REDACTED] Am I corre ...
 Commented [165]: I guess (c) and (d) convey that a ...
 Commented [166]: Thanks, so I think no additional l ...
 Commented [167]: Right, yeah, modulo any edges ...
 Commented [168]: @chuy [REDACTED] Could you ...
 Commented [169]: This is just meant to convey that ...
 Commented [170]: Sounds good!
 Commented [171]: Thanks both. It sounds like the ...
 Commented [172]: Agree, than [REDACTED]
 Commented [173]: @kechyeke [REDACTED] and ...
 Commented [174]: I think we need to align with [REDACTED]

Key questions

See active discussions [Apps in GAA](#) and [DDA for Apps Open Actions](#).

Commented [175]: Is this answered? My understanding is 3ps will still play a big role as source of truth for app advertisers.

Commented [176]: Yeah, that's the current thinking. I added a second sub-bullet to capture this.

Commented [177]: Is this "app attribution data" or just "app conversion data"?

Commented [178]: Is this referring to Ads preferred DDA or X-channel DDA?
@chuy [REDACTED]
Assigned to Charles Hui

Commented [179]: Could you help me understand what each one is? Are x-channel DDA credits what Analytics produces and Ads preferred DDA what Google Ads produces using raw, unattributed conversions data from Analytics? This is closely related to https://docs.google.com/document/d/1JLZDbKYOISlzGJEk3J7y3BZ-ZISpTbEvdvZQX_P/edit?ts=5f1321c5.

Commented [180]: Do we plan to add app conversion attribution report to the existing GAA report?

Commented [181]: Thanks for kicking off the discussion.
Added a few questions / points of confirmation here to see if we're all aligned in our initial understanding of things.

https://docs.google.com/document/d/1JLZDbKYOLSIzG_jEk3J7v3BZ-ZlSpTBEvqdbZQX_P/edit?ts=5f29f47b#bookmark=id.f s22o7pqueks.

Commented [182]: Given the decisions in <https://docs.google.com/presentation/d/1aepAic3fnP9qwrpuFssb4GOybef7qndPrnnjUKWjKPQs/edit#slide=i>

Commented [183]: +1

Commented [184]: Thanks Hetal. With perf and okrs coming soon, it would help to schedule this sooner rather than later.

Commented [185]: Hetal, feel free to set up, or if you share a list of attendees, I'm happy to do it too.

Commented [186]: Scheduled for Friday tentatively. Please feel free to modify as needed. Thanks

Commented [187]: For me to understand the background, is it possible for the app owner to use the same account and different campaigns to measure

Commented [188]: >> is it possible for the app owner to use the same account and different campaigns to measure different conversion objectives (e.g. install v

Commented [189]: The issue further complicates when each account have different conversion types: if one account has DDA and other account says do last

Commented [190]: @pensado [REDACTED], could you update this placeholder to reflect the point / question you raised during today's meeting? Thanks!

@hetal [REDACTED], FYI.
Assigned to Armando Pensado_

Commented [191]: This part just wasn't clear to me since I'm not familiar with apps, it sounds like apps ...

Commented [192]: Ah, not just, apps can also attribute to Search campaigns, app campaigns, etc. [...]

Commented [193]: Sorry I still don't quite get it. Maybe I'm mixing up what it means to attribute to an app ...

Commented [194]: Adding a Network != "YouTube" filter in path reports / _Model comparison_ could filter ...

Commented [195]: I don't want to butcher your doc, so sounds like there's two things to watch out for: ...

Commented [196]: Butcher away, heh, no worries. I've captured your two points at the end of th ...

Commented [197]: ok, I simplified to what was my point, feel free to add back your words if you feel that ...

Commented [198]: Thanks!

Commented [199]: @msiska [REDACTED] are there any special considerations we should keep in mind ...

Commented [200]: Do we plan to add more dimensions in the reports? e.g. app vs web?

Commented [201]: @kellynelson [REDACTED] and @cteng [REDACTED] what do you think - are there ...

Commented [202]: @jcole [REDACTED] to help

Commented [203]: I'd think web vs. app conversions for sure. If by conversion type you mean segments lik ...

Commented [204]: >> I'd think web vs. app conversions for sure.

Commented [205]: +1 to app vs web and exposing conversion type (EVC vs Click) - would love to align ...

Commented [206]: Hmm, could you explain EVC vs. Click further?

Commented [207]: we recently started exposing "ad interaction type" so customers can see which ...

Commented [208]: Thanks for sharing the pointer! Logged this in the _Reporting in Google Ads_ section ...

Commented [209]: yes - I believe something like that would be entirely adequate for apps customers

Commented [210]: @lanhuang [REDACTED] what are the key teams we should list here?

Commented [211]: Charles, I would imagine we can start with a similar group of teams like GDA for GAA. ...

Commented [212]: Sure, added placeholders. We can consolidate if needed. Would you want to start ...

Implementation

[REDACTED] Aggregation

Owner: [REDACTED]

- A
- B
- C

[REDACTED] - QE

Owner: [REDACTED]

- A
- B
- C

GAA - Processing (Ingestion)

Owner: [REDACTED]

- Note: There may not be any changes needed to the GAA system since we are proposing to do both the GA and GAA path on [REDACTED] instance of [REDACTED] (i.e., Ads-preferred DDA and x-

channel DDA attribution will be done on a single stack unlike web where we have GAA as a separate stack / system.)

GAA - Processing (Attributor)

Owner: [REDACTED]

- A
- B
- C

GAA - Modeling

Owner: [REDACTED]

- A
- B
- C

GAA - Processing (Ingestion)

Owner: [REDACTED]

- A
- B
- C

GAA - PMT

Owner: [REDACTED]

- A
- B
- C

GAA - Export (AWCT reporting and bidding)

Owner: [REDACTED]

- A
- B
- C

GAA - Aggregation

Owner: [REDACTED]

- A
- B
- C

GAA - Serving

Owner: [REDACTED]

- A
- B
- C

GAA - UI

Owner: [REDACTED]

- A
- B
- C

GAA - AP / Evenflow

Owner: [REDACTED]

- A
- B
- C

GAA - Bidding

Owner: [REDACTED]

- A
- B
- C

Timelines

- Oct 15: Google Analytics will provide path data to the [REDACTED] team.